

REMARKS

Applicants hereby cancel claim 31, and amend claims 2, 4-7, 9, 11-12, 15-19, 32, 47-48, 50 and 54-57.

The amendments to claims 4 and 47 respond to the Examiner's rejection of said claims under § 101 for claiming non-statutory subject matter, and under § 112 for being indefinite.

The amendments to claims 5 and 7 respond to the Examiner's rejection of those claims under § 112 for being indefinite.

The remaining amendments correct typographical or grammatical errors, alter antecedent bases, clarify language, change the dependencies of claims and/or make other changes to more clearly specify the subject matter of each claim.

Amendments to the claims are not an acquiescence to any of the rejections. Silence with regard to any of the Examiner's rejections is not an acquiescence to such. Specifically, silence with regard to Examiner's rejection of a dependent claim, when such claim depends from an independent claim that Applicants consider allowable for reasons provided herein, is not an acquiescence to such rejection of the dependent claim(s), but rather a recognition by Applicants that such previously lodged rejection is moot based on Applicants' remarks and/or amendments relative to the independent claim (that Applicants consider allowable) from which the dependent claim(s) depends. Furthermore, any cancellations of and amendments to the claims are being made solely to expedite prosecution of the instant application. Applicants reserve the option to further prosecute the same or similar claims in the instant or a subsequent application.

Upon entry of the Amendment, claims 2-22, 26-30, 32-33 and 47-57 are pending in the present application.

Claim Amendments

Claims 4 and 47 have been amended to require that

outputting a result comprises outputting at least one of the first percent identity, the second percent identity, a third percent identity, a scoring matrix, an identification of the first sequence, an identification of the second sequence, an identification of the alignment having the smallest error, the alignment error associated with the alignment having the smallest error, a number of gaps in the first sequence, a number of gaps in the second sequence, a position of the alignment having the smallest error, and a beginning position in one of the first sequence and the second sequence of the alignment having the smallest error.

Support for this amendment is provided, without limitation, at page 5, lines 5-17, page 7, lines 17-18, page 12, lines 7-9, page 14, line 20 to page 15, line 1, and Figure 2. No new matter is involved.

The amendments to other claims, and the amendments to claims 4 and 47 other than that set forth above, clarify claim language such as by providing antecedent bases or correcting typographical or grammatical errors, or change the dependencies of claims. No new matter is involved.

Section 101 Rejections

The Examiner rejected all pending claims as being directed at nonstatutory subject matter, in that they did not produce useful, concrete and tangible results. In particular, the Examiner stated, the limitation of independent claims 4 and 47 “outputting a result,” without specifying the result, did not constitute statutory subject matter. Applicant does not concede that the Examiner was correct in his rejections of these claims. However, Applicant has amended claims 4 and 47 (from which all claims depend) to specify useful, concrete and tangible results. In particular, the amendments to claims 4 and 47 require that

outputting a result comprises outputting at least one of the first percent identity, the second percent identity, a third percent identity, a scoring matrix, an identification of the first sequence, an identification of the second sequence, an identification of the alignment having the smallest error, the alignment error associated with the alignment having the smallest error, a number of gaps in the first sequence, a number of gaps in the second sequence, a position of the alignment having the smallest error, and a

beginning position in one of the first sequence and the second sequence of the alignment having the smallest error.

Applicants respectfully suggest that amended claims 4 and 47 provide for useful, concrete and tangible results, in that specific pieces of information are now specified as output in these claims, and the said pieces of information are useful to a user of the methods set forth in the said claims. For example, and not by way of limitation, the percent identities optionally output would permit a user to determine a degree of relationship between the first and second sequences; other pieces of information optionally output provide the user with further information about the relationship between the sequences.

Since all other claims depend directly or indirectly from claims 4 and 47, they also provide for useful, concrete and tangible results.

Section 112 Rejections

The Examiner has rejected all pending claims under Section 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter Applicants regard as the invention.

Claims 4 and 47

The Examiner rejected claims 4 and 47 (and therefore claims 2-22, 26-33, 48-49, and 50-57 which depend therefrom) on the ground that it was unclear what result was output, whether that result was a result of the claimed methods, and what about the percent identity the result was based upon. Applicants have amended claims 4 and 47) in response by inserting the following language:

outputting a result comprises outputting at least one of the first percent identity, the second percent identity, a third percent identity, a scoring matrix, an identification of the first sequence, an identification of the second sequence, an identification of the alignment having the smallest error, the alignment error associated with the alignment having the smallest error, a number of gaps in the first sequence, a number of gaps in the second sequence, a position of the alignment having the smallest error,

and a beginning position in one of the first sequence and the second sequence of the alignment having the smallest error.

Applicants respectfully suggest that, as set forth above, specific pieces of information are now specified as output in these claims. Furthermore, the said pieces of information are either determined by the methods of the claims, or are associated with information so determined. (See, without limitation, the specification at the pages cited above - page 5, lines 5-17, page 7, lines 17-18, page 12, lines 7-9, and page 14, line 20 to page 15, line 1, and Figure 2.) Applicants further point out that “based upon the computed first percent identity and second percent identity, outputting a result” as used in the said claims, may refer, without limitation, to the comparison of the percent identities with a percent identity threshold, as discussed at page 5, lines 8-17 of the specification.

Applicants respectfully request that based upon the above amendments and response, the Examiner should remove the rejections of claims 4 and 47 (and therefore of all other claims, which depend therefrom) on § 112 grounds.

Claims 5 and 7

The Examiner rejected claims 5 and 7 on the ground that there was no antecedent basis for the term “the mismatches.” Applicants have amended claims 5 and 7 to replace “the mismatches” with “mismatches.”

Applicants respectfully request that based upon this amendment and response, the Examiner should remove the rejections of claims 5 and 7 on § 112 grounds.

CONCLUSION

In view of the foregoing amendment and remarks, Applicants consider the Response herein to be fully responsive to the referenced Office Action, and respectfully submits that all of the pending claims are now in condition for allowance. Early and favorable reconsideration is therefore respectfully solicited.

If there are any remaining issues or the Examiner believes that a telephone conversation with Applicants' attorney would be helpful in expediting the prosecution of this application, the Examiner is invited to call the undersigned at 617-832-1118.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those which may otherwise be provided for in documents accompanying this paper; however, in the event that additional extensions of time are necessary, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a). Should an extension of time be required, Applicants request that the extension fee and any other fee required for timely consideration of this application be charged to Deposit Account **No. 06-1448, Reference GIO-101.**

The Commissioner is hereby authorized to charge any under-payments or credit any overpayments to our Deposit Account No. 06-1448

Dated: April 28, 2008

Respectfully submitted,

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